



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/535,206	03/27/2000	Muralidharan S Kodialam	6-12	3864

7590 11/03/2005  
HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 8910  
Reston, VA 20195

EXAMINER
----------

BOUTAH, ALINA A

ART UNIT	PAPER NUMBER
----------	--------------

2143

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/535,206	KODIALAM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alina N Boutah	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

Prosecution on the merits of this application is reopened on claims 1-10 considered unpatentable for the reasons indicated below.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over "*Design of a Fast Restoration Mechanism for Virtual Path-Based ATM Networks*," an article written by Chao-Ju Hou (hereinafter referred to as "Hou") in view of "*Design of Self-Healing Algorithm for ATM Networks*," an article written by Gao et al. "hereinafter referred to as "Gao").

Regarding claim 1, Hou teaches a method of dynamically establishing restorable paths in an information network in response to arriving traffic requests, the networking having a number of nodes and links between corresponding pairs of nodes, comprising:

receiving requests at a first node of the network for transmission of traffic to a second node of the network, wherein a given request specifies a desired transmission bandwidth for an active path and a backup path to be established between the first and the second nodes (Abstract; Introduction, 2<sup>nd</sup> – 3<sup>rd</sup> paragraph; Preliminaries, 1<sup>st</sup> – 2<sup>nd</sup> paragraph);

Art Unit: 2143

distributing information to nodes in the network (page 362, left column, 3<sup>rd</sup> paragraph, lines 9-14, figure 1) concerning (b) total bandwidth reserved by each link in the network for all backup paths currently defined in the network (page 361, 3<sup>rd</sup> paragraph, line 1 to page 362, line 13; Preliminaries, 1<sup>st</sup> – 4<sup>th</sup> paragraph);

identifying potential active links in the network an active path in response to a given request, wherein the potential active links each have an available bandwidth at least equal to the bandwidth specified by the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs);

identifying potential backup links in the network for a backup path for restoring the active path after the given request has arrived, wherein the potential back links each have an available bandwidth at least equal to the desired transmission bandwidth specified by the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, page 364, col. 1, line 31 to col. 2, lines 12); and

formulating an active and a backup path for each given request from among the potential active links and the potential backup links identified in response to the given request (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, and Restoration of Failed Primary VPs).

Although Hou teaches primary paths (interpreted as “active paths”), he does not explicitly state (a) total bandwidth being reserved by each link in the network for all active paths currently defined in the network. Gao teaches reserving bandwidth for active paths (page 3, lines 5-10; page 4: “Link Bandwidth Division” - normal bandwidth is interpreted as bandwidth assigned to active paths). At the time the invention was made, one of ordinary skill in the art

Art Unit: 2143

would have been motivated to reserve bandwidth for active paths in order to maintain desirable quality of service, therefore making the network more robust.

Regarding claim 2, Hou teaches the method of claim 1, including determining the available bandwidth of a potential backup link having a certain total bandwidth capacity, by subtracting from the total bandwidth capacity (a) the total bandwidth reserved by the link for all current active paths through the link, and (b) the total bandwidth reserved by the link for all currently backup paths through the link (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, Problem 1).

Regarding claim 3, Hou teaches the method of claim 1, including defining each backup path in the network to be link disjoint from its corresponding active path (Overview of Proposed Fast Restoration Mechanism, Problem 1).

Regarding claim 4, Hou teaches the method of claim 1, including defining each backup path in the network to be node disjoint from its corresponding active path (Overview of Proposed Fast Restoration Mechanism, Problem 1).

Regarding claim 5, Hou teaches a method of dynamically establishing restorable paths in an information network in response to arriving traffic requests, the network having a number of nodes and links between corresponding pairs of nodes, comprising:

receiving requests at a first node of the network for transmission of traffic to a second node of the network, wherein a given request specifies a desired transmission bandwidth for an active path a backup path to be established between the first and the second nodes (Abstract; Introduction, 2<sup>nd</sup> – 3<sup>rd</sup> paragraph; Preliminaries, 1<sup>st</sup> – 2<sup>nd</sup> paragraph);

selecting active links in the network to form the active path in response to a given request, wherein the active links each have an available bandwidth corresponding to the bandwidth specified by the given request (Preliminaries, 1<sup>st</sup> – 4<sup>th</sup> paragraph); and

selecting backup links in the network to form the backup path for restoring the formed active path after the given request has arrived, by using a maximum total bandwidth reservation among the active links selected to form the active path to determine a required bandwidth reservation for each backup link selected to form the backup path (page 361, 3<sup>rd</sup> paragraph, line 1 to page 362, line 13; Preliminaries, 1<sup>st</sup> – 4<sup>th</sup> paragraph; figure 2).

Although Hou teaches primary paths (interpreted as “active paths”), he does not explicitly disclose a total bandwidth being reserved by each link in the network for all active paths currently defined in the network. Gao teaches reserving bandwidth for active paths (page 3, lines 5-10; page 4: “Link Bandwidth Division” - normal bandwidth is interpreted as bandwidth assigned to active paths). At the time the invention was made, one of ordinary skill in the art would have been motivated to reserve bandwidth for active paths in order to maintain desirable quality of service, therefore making the network more robust.

Regarding claim 6, Hou teaches the method of claim 5, including distributing information to nodes in the network concerning (a) total bandwidth reserved by each link in the network for

Art Unit: 2143

all active paths currently formed in the network, and (b) total bandwidth reserved by each link in the network for all backup paths currently formed in the network (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs; page 364, col. 1, line 31 to col. 2, lines 12).

Regarding claim 7, Hou teaches the method of claim 5, including determining if each potential backup link for the backup path to be formed is capable of accommodating the required bandwidth reservation for the active path to selecting the potential backup link (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, Problem 1).

Regarding claim 8, Hou teaches the method of claim 7, wherein said determining step includes comparing the total bandwidth reserved by each potential backup link for all currently backup paths in the network, with the required bandwidth reservation for the backup path to be formed (Overview of Proposed Fast Restoration Mechanism, Establishment of Backup VPs, Problem 1).

Regarding claim 9, Hou teaches the method of claim 5, including defining each backup path in the network to be link disjoint from its corresponding active path (Overview of Proposed Fast Restoration Mechanism, Problem 1).

Art Unit: 2143

Regarding claim 10, Hou teaches the method of claim 5, including defining each backup path in the network to be node disjoint from its corresponding active path (Overview of Proposed Fast Restoration Mechanism, Problem 1).

***Conclusion***

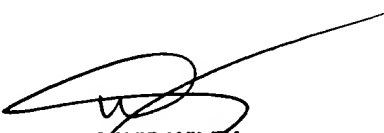
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alina N. Boutah whose telephone number is 571-272-3908. The examiner can normally be reached on Monday-Friday (9:00 am - 5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*ANB*

ANB

  
**DAVID WILEY**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100